

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

## PCT

### NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

To:

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IPM/U SWF
Frist:
22. März 2006

Date of mailing  
(day/month/year)

21.03.2006

Applicant's or agent's file reference  
P808415/WO/1

#### IMPORTANT NOTIFICATION

International application No.  
PCT/US2005/003357

International filing date (day/month/year)  
04.02.2005

Priority date (day/month/year)  
06.02.2004

Applicant  
NUCELLSys GMBH et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

#### 4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

Name and mailing address of the international  
preliminary examining authority:



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# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference P808415/WO/1	<b>FOR FURTHER ACTION</b> See Form PCT/IPEA/416	
International application No. PCT/US2005/003357	International filing date (day/month/year) 04.02.2005	Priority date (day/month/year) 06.02.2004
International Patent Classification (IPC) or national classification and IPC INV. H01M8/02 H01M8/04 H01M8/10		
Applicant NUCELLSys GMBH et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau) a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  05.12.2005	Date of completion of this report  21.03.2006	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Wiedemann, E  Telephone No. +49 89 2399-	



INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITYInternational application No.  
PCT/US2005/003357

AP20 Rec'd PCT/PTO 07 AUG 2006

**Box No. I Basis of the report**

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
    - ☐ international search (under Rules 12.3 and 23.1(b))
    - ☐ publication of the international application (under Rule 12.4)
    - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-8 as originally filed

**Claims, Numbers**

1-15 as originally filed

**Drawings, Sheets**

1/1 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
    - ☐ the description, pages
    - ☐ the claims, Nos.
    - ☐ the drawings, sheets/figs
    - ☐ the sequence listing (*specify*):
    - ☐ any table(s) related to sequence listing (*specify*):
  4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
    - ☐ the description, pages
    - ☐ the claims, Nos.
    - ☐ the drawings, sheets/figs
    - ☐ the sequence listing (*specify*):
    - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/US2005/003357

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	4, 6-11, 13-15
	No: Claims	1, 2, 3, 5, 12
Inventive step (IS)	Yes: Claims	4, 9-11, 13-15
	No: Claims	1-3, 5-8, 12
Industrial applicability (IA)	Yes: Claims	1-15
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

**INTERNATIONAL PRELIMINARY  
REPORT ON PATENTABILITY  
(SEPARATE SHEET)**

**10/588645**  
**AP20 Rec'd PCT/PTO 07 AUG 2006**  
International application No.

**PCT/US2005/003357**

**Re Item V**

**Reasoned statement with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement**

**1. Cited Documents**

- D1: EP-A-1 113 516 (GENERAL MOTORS CORPORATION) 4 July 2001 (2001-07-04)  
D2: US-A-6 068 941 (FULLER ET AL) 30 May 2000 (2000-05-30)  
D3: US-A-6 127 056 (WHEELER ET AL) 3 October 2000 (2000-10-03)  
D4: PATENT ABSTRACTS OF JAPAN vol. 013, no. 038 (E-709), 27 January 1989 (1989-01-27) & JP 63 236262 A (HITACHI LTD), 3 October 1988 (1988-10-03)

**2. Novelty**

The subject-matter of claims 1-3, 5, 6 and 12 is not considered to be novel, Article 33 (1) and (2) PCT.

Document D1 discloses a method to cold-start a fuel cell, wherein oxygen and hydrogen are supplied to the cell, so that the reacted fuel causes the fuel cell to heat up. Reaching a temperature of -20°C electrical current is drawn from the cell to supply additional heating devices (e.g. IR heating). A combustor heats the coolant which circulates by use of a pump through the stack. After reaching a preset temperature heating of the coolant is discontinued (column 5, 0016).

Document D2 discloses a method to cold-start a fuel cell. During shut down of the fuel cell alcohol is added to the coolant passages to protect the system from freezing. Upon start-up oxygen is supplied to the fuel cell and alcohol from the coolant passages diffuses to cathode and start a fuel cell reaction producing heat. A battery supplies energy in the beginning of the start-up period to a fan and pump to let the fuel cell heat further. Once electrical current is drawn from the cell auxiliary devices like the pump can be supplied by the fuel cell itself.

**3. Inventive Step**

The subject-matter of claims 4 and 7-8 is not considered to be based on an inventive step,

**INTERNATIONAL PRELIMINARY  
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(SEPARATE SHEET)**

International application No.

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Article 33 (3) PCT.

3.1 The technical problem underlying the present application can be seen in providing a method to cold-start a fuel cell allowing the system to be more compact and to contain a battery with lower storage capacity.

3.2 This problem is solved in the prior art and solved there in a similar way, see point 2.

3.3 The capacity (claim 4) at which the cold fuel cell stack is operated is especially linked to avoid damages and is not considered to provide any inventive matter.

3.4 The subject-matter of claim 7 and 8 is not considered as inventive since the every burner needs fuel and it is obvious for a skilled person the supply fuel which is already present at the system.